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-	2416	(mail\$1 or email\$1) with (urgent\$3 or importan\$3)	USPAT; US-PGPUB	2004/08/12 12:24
-	1124	((mail\$1 or email\$1) with (urgent\$3 or importan\$3)) and @ad<20000511	USPAT; US-PGPUB	2004/08/10 17:00
-	771	((mail\$1 or email\$1) with (urgent\$3 or importan\$3)) and @ad<20000511) and (notif\$3 or notification\$1 or forward\$3)	USPAT; US-PGPUB	2004/08/10 17:00
-	7	((mail\$1 or email\$1) with (urgent\$3 or importan\$3)) and @ad<20000511) and (notif\$3 or notification\$1 or forward\$3)) and (mobile\$1 or wireless or radio)) and bluetooth	USPAT; US-PGPUB	2004/08/10 17:02
-	381	((mail\$1 or email\$1) with (urgent\$3 or importan\$3)) and @ad<20000511) and (notif\$3 or notification\$1 or forward\$3)) and (mobile\$1 or wireless or radio)	USPAT; US-PGPUB	2004/08/13 10:49
-	381	((mail\$1 or email\$1) with (urgent\$3 or importan\$3)) and @ad<20000511) and (notif\$3 or notification\$1 or forward\$3)) and (mobile\$1 or wireless or radio)	USPAT; US-PGPUB	2004/08/13 11:23
-	326	((mail\$1 or email\$1) with (urgent\$3 or importan\$3)) and @ad<20000511) and (notif\$3 or notification\$1 or forward\$3)) and (mobile\$1 or wireless or radio)) and (wireless or mobile)	USPAT; US-PGPUB	2004/08/13 11:26
-	100	((mail\$1 or email\$1) with (urgent\$3 or importan\$3)) and @ad<20000511) and (notif\$3 or notification\$1 or forward\$3)) and (mobile\$1 or wireless or radio)) and (wireless or mobile)) and (mail adj2 server\$1)	USPAT; US-PGPUB	2004/08/13 11:59

US-PAT-NO: 6535586

DOCUMENT-IDENTIFIER: US 6535586 B1

TITLE: System for the remote notification and retrieval of electronically stored messages

----- KWIC -----

Application Filing Date - AD (1):
19981230

TITLE - TI (1):
System for the remote notification and retrieval of electronically stored messages

Brief Summary Text - BSTX (2):
The present invention relates generally to communication networks. In particular, the present invention is directed to a mobile messaging system and comprises a method and apparatus for direct access to messages circumventing the complexity of complex voice menus.

Brief Summary Text - BSTX (4):
Reliance upon messaging services for personal and business use has grown significantly in recent years. The average business or home user relies upon a diverse set of voice mail, e-mail and FAX services. However, the user interface in many messaging systems is often deficient. In addition, messaging systems generally do not provide an integrated and flexible environment for the retrieval and manipulation of diverse message types. For example, a typical user maintains separate services for voice mail and e-mail and is forced to learn and use a different command set for each service. Moreover, the command structure for a typical messaging service such as voice-mail often requires the user to navigate a complex menu structure. Mastering this command structure is often time consuming and confusing and because of this difficulty, most users do not take advantage of many of the features of the system. In addition, the complexity of learning and operating many messaging systems and the lack real time messaging involving synchronous communication often results in user's decision to avoid using the service at all. For example, it is estimated that many e-mail subscribers fail to check their e-mail accounts on a regular basis. The majority of the current generation of consumer e-mail services require a user to switch on their personal computer, start a program to initiate a dial-up connection with their e-mail server and then navigate a complex set of menus and commands to read each e-mail, respond or perform other functions. Although most e-mail systems in the work place do not require dial-up access, often the message recipient is away from the computer terminal, and therefore may miss important time-sensitive messages.

Brief Summary Text - BSTX (5):

The lack of an instant or direct notification upon the receipt of a message is a significant shortcoming of many messaging systems. Although the availability of "paging" services provide some means for high priority message transfer, these services have limited capability in the size of transmitted messages. Typically, paging services provide the capacity to alert a subscriber of a paging party's telephone number only. Furthermore, conventional messaging systems do not provide any filtering mechanism so that a user is only alerted upon the receipt of high priority messages. For example, an e-mail user might desire instant notification when an e-mail message is received from a particular sender or concerning a particular subject.

Brief Summary Text - BSTX (6):

In addition, message system subscribers often need the capability for the retrieval of messages remotely. For example, often mobile users do not have access to a personal computer or other device necessary to access e-mail messages. A user might be traveling or otherwise unable to gain access to a personal computer or the Internet. For example, a user at home might need the capability of being alerted to the receipt of important e-mail messages on their work e-mail server.

Brief Summary Text - BSTX (7):

Thus, a need exists for a system through which an electronic message recipient can be quickly notified of the receipt of a message according to a selected set of criteria even while the recipient is away from a computer terminal or other device typically used for the retrieval of messages. Furthermore, there is a need for a complementary system through which a user can retrieve an electronic message remotely, even though the intended recipient does not have access to a personal computer or other conventional retrieval apparatus.

Detailed Description Text - DETX (3):

Furthermore, the embodiments described herein pertain to the transmission and retrieval of messages over the Internet. However, the present invention could be used to provide enhanced messaging services for messages retrieved from any number of alternative networks such as an intranet, local area network (LAN), metropolitan area network (MAN), wide area network (WAN) or even a wireless network, and thus, the embodiments discussed herein are not intended to limit the scope of the claims appended hereto.

Detailed Description Text - DETX (4):

FIG. 1 is a block diagram depicting a system architecture for enhanced messaging services for e-mail subscribers according to one embodiment of the present invention. The enhanced messaging functions provided by the present invention comprise two major components: (1) notification of the enhanced message service subscriber of the receipt of high-priority messages and, (2) remote retrieval of messages. E-mail server 110 serves as a repository for

e-mail messages received over a network such as the Internet 130. In the absence of any enhanced messaging services, an e-mail subscriber would typically retrieve e-mail messages from e-mail server 110 using e-mail client software through the initiation of dial-up access or using a dedicated Internet connection. The enhanced messaging functions provided by the system depicted in FIG. 1 include automatically alerting a message recipient of the receipt of new messages, filtering low-priority messages as well as providing for remote message retrieval. The notification and remote retrieval aspects of the present invention are designed to work in conjunction with one another but also may be used independently and may be combined with other messaging system architectures.

Detailed Description Text - DETX (7):

According to one embodiment of the present invention, messaging system server 120 provides notification to an enhanced messaging subscriber of high priority e-mail messages by transmitting a wireless message to a wireless device 170 carried by the subscriber. According to this embodiment, upon the detection of new messages, messaging system server 120 transmits wireless electromagnetic signals through transceiver 150, antenna 160a and wireless subnet 180 to wireless device 170. According to one embodiment, wireless device 170 is a pager device that can receive alphanumeric data over a wireless interface, although in alternative embodiments wireless device 170 may be a cellular telephone, PCS device or any other wireless communication device equipped with transceiver 150 and antenna 160b. Although the embodiment described herein shows the wireless transmission apparatus as integrated with messaging system server 120, in alternative embodiments, messaging system server 120 may initiate a wireless page by dialing a paging system using a conventional PSTN (Public Switched Telephone Network) call.

Detailed Description Text - DETX (8):

In general, the present invention may be implemented using any type of devices capable of receiving a message code either as alphanumeric information or some other medium, wired or wireless. For example, wireless device 170 could be replaced with a personal computer connected to messaging system server 120 over an Internet 130 connection via wire or wireless transmission paths. Moreover, wireless device 170 could be replaced with a standard telephone device in which case messaging system server 120 could deliver message code using a text to speech (TTS) device over the PSTN.

Detailed Description Text - DETX (12):

In step 210, messaging system server 120 polls e-mail server 110 for new messages using the POP3 protocol. According to one embodiment, messaging system server is programmed to poll e-mail server 110 on a periodic basis, for example every 15 minutes for the receipt of new messages. If no new messages are detected, the procedure ends ('no' branch of step 220). If a new message has been received ('yes' branch of step 220), a sufficient portion of the message is retrieved to generate a unique message code using a defined hashing function and to apply the filter criteria (step 235) selected by the message recipient. For example, according to one embodiment, if messaging system server 120 detects that a new message has been received at remote message

server 110, it issues the appropriate POP3 commands only to retrieve the "Date" and "From" fields of that message. In step 235, filter criteria are applied to the retrieved message headers to determine whether the message recipient should be alerted to the receipt of the message. If a given message does not satisfy the filter criteria ('no' branch of step 240), messaging system server 120 checks for any remaining messages ('no' branch of step 240). If the filter criteria are met ('yes' branch of step 240), a message code is computed using a hashing function applied to the retrieved message headers (step 250) (details described below). Finally, the message code is transmitted to the recipient (step 260). As discussed earlier, this alerting process may be accomplished using a wireless communications interface through transceiver 150a, wireless subnet 180 antenna 160b to wireless device 170 retained by the message recipient.

Detailed Description Text - DETX (19):

FIG. 6 depicts one possible alternative embodiment. In this embodiment, access device 190 is a personal computer connected to the Internet. According to this embodiment, personal computer also serves the notification function of wireless device in FIG. 1. According to this embodiment, messaging system server 120 notifies a subscriber connected to the Internet 130 of a high priority message using instant paging software. For example, in one embodiment, upon connecting to the Internet 130, a software program running on personal computer 190 alerts messaging system server 120 through Internet 130 connection of its dynamically assigned IP address. According to this embodiment, the software program running on personal computer 190 continually monitors incoming IP packets sent to it from messaging system server 120. According to this alternative embodiment, messaging system server runs a message notification process as depicted in FIG. 2. However, instead of sending a wireless paging message containing the signature code of a high priority message, according to this embodiment, messaging system server transmits an IP page to personal computer 190 containing the code signature of a high priority e-mail message received at remote e-mail server 110.

Claims Text - CLTX (6):

6. The method of claim 1, wherein said network comprises a wireless network.

US-PAT-NO: 6628194

DOCUMENT-IDENTIFIER: US 6628194 B1

TITLE: Filtered in-box for voice mail, e-mail, pages, web-based
information, and faxes

----- KWIC -----

Abstract Text - ABTX (1):

Wireless devices and systems are configured to display the number of voice mails, e-mails, and Internet information alerts that are received during a selected time interval. Incoming information can be organized by user-specified criteria such as sender identity or by information content so that, for example, work-related and personal messages are distinguished. Message classifications and numbers of messages associated with message classifications are displayed on a **mobile** device.

Application Filing Date - AD (1):

19990831

Assignee Name - ASNM (1):

AT&T **Wireless** Services, Inc.

Assignee Group - ASGP (1):

AT&T **Wireless** Services, Inc. Redmond WA 02

Brief Summary Text - BSTX (2):

The present invention is directed to a method for organizing, prioritizing, and displaying incoming message information on a **wireless** device.

Brief Summary Text - BSTX (4):

In recent years, the functionality of **wireless** devices has expanded far beyond simple voice or pager communications. **Wireless** devices can now receive a variety of incoming messages including pages, e-mails, faxes, voicemails, and short message services such as weather or sports updates. In some cases the actual message, for example a voicemail, is not delivered directly to the **wireless** device due to memory, bandwidth, or other limitations, but rather a **notification** message is sent to the **wireless** device to **notify** the user that a message has arrived and is being stored at a remote location. These type of **notification** messages are known in the art as shown in U.S. Pat. No. 5,797,103, "Method and Apparatus For Informing A Remote Unit Of A Feature-Originated Call", incorporated herein by reference. The **notification** messages, as well as some actual messages, are generally stored within the

wireless device. However, most wireless devices are only equipped with a small screen that displays a few short lines of text or small graphics. To view each item that has been sent to the wireless device, the user generally must scroll through a series of screens or menus and may be forced to examine all of the items of a particular type, or sometimes all of the items regardless of type in order to find the message of interest. Most wireless devices can be set to alert the user that a new message has arrived, but this feature is not very useful if it is alerting the user every few moments that something new has arrived. The user is likely to begin ignoring the alert or simply turn it off. This may result in important messages going unnoticed among a large number of unimportant messages.

Brief Summary Text - BSTX (5):

For example, a user may subscribe to a number of services for his wireless device, including paging, a sports score service, and e-mail. With all of these services active on a typical evening when a variety of sporting events are in progress, the user may be receiving several messages every few minutes. If during this time the user receives an important page or e-mail from his or her boss, the message may go unnoticed among all the other messages and the user may miss an important work assignment.

Brief Summary Text - BSTX (6):

The user of a wireless device can be easily overwhelmed when trying to keep track of and prioritize the myriad pieces of information that are arriving at any given time. It would be desirable for the wireless device to be able to organize the incoming information in such a way that the user can quickly and easily recognize and distinguish between important and unimportant items.

Brief Summary Text - BSTX (8):

The present invention provides a method for automatically organizing and prioritizing the incoming messages on a wireless communication device and displaying the messages accordingly. A predetermined set of rules is used to perform the organization and prioritization of the incoming messages. When a message arrives, it is analyzed to determine certain classification information about the message. This classification information is then used to organize the incoming message among the messages that are already being stored on or referenced on the wireless device. This information is also used to determine the priority of the incoming message. Depending on the level of priority assigned to the incoming message, the wireless device may alert the user that the new message has arrived or may just store the message for the next time the user chooses to check for messages. The wireless device may also update its display to reflect the various classification information that has been gathered about the messages presently being stored.

Brief Summary Text - BSTX (9):

The present invention allows the user of a wireless communication device to subscribe to any number of services that send messages to the device, but the user maintains control over the way the incoming messages are handled to prevent being overwhelmed with information.

Drawing Description Text - DRTX (2):

FIG. 1 illustrates a wireless network such as may be used with an embodiment of the present invention.

Detailed Description Text - DETX (2):

The present invention could be implemented within a wireless network similar to that depicted in FIG. 1. A wireless device 101 communicates with a wireless infrastructure 102 that is connected to a variety of public and private networks including the Public Switched Telephone Network (PSTN) 103 and the Internet 104. The user of the wireless device subscribes to a variety of information services that send messages of various formats or types to the wireless device via one of the networks to which wireless infrastructure 102 is connected. These services can include, but are not limited to, email, paging, voice mail, fax, and short message services (including short message based information services). These messages can originate from a variety of equipment such as telephone 105, fax machine 106, computer terminal 107, or network server 108 depending on the type of message. The equipment that sends the message will vary based on the type of message and some messages may pass through more than one type of equipment before delivery to the wireless device.

Detailed Description Text - DETX (3):

For example, an individual may leave a voicemail message for the user of the wireless device from telephone 105, but the voicemail will likely be stored on Private Branch Exchange (PBX) equipment 109 or telephone company equipment 110 and the device storing the voicemail will send a notification message to the wireless device to inform the user that the voicemail has arrived. Additionally, some types of messages can be sent from more than one type of equipment. For example, faxes may be sent from either fax machine 106 or computer terminal 107 if it is equipped with fax software.

Detailed Description Text - DETX (4):

FIG. 2 illustrates one possible way of implementing the present invention where much of the processing of the incoming messages is performed in the wireless infrastructure. A message for the user of wireless device 101 is received by wireless infrastructure 102 (step 201). The wireless infrastructure then retrieves a set of rules corresponding to the user for which the message is intended from a database either co-located with the wireless infrastructure or at a remote location and accessible to the wireless infrastructure via a computer network (step 202). Using these rules, the wireless infrastructure analyzes the message and determines classification information about the message (step 203). Based on this classification information, the wireless infrastructure can assign a priority to the message if desired; and if this priority is not very high the wireless infrastructure may elect not to send the alert message to the device, instead saving the alert message for later retrieval (step 204, 205). If the priority is sufficiently high, the wireless infrastructure sends an alert message to the wireless device containing the classification information about the received message (step 206). This alert message can optionally contain part or the entire contents of

the original message along with the classification information. Once the wireless device receives the alert message, it organizes and prioritizes the incoming message with the messages already stored on the wireless device using the classification information and pre-assigned priority information (if available) associated with the incoming message and the classification information that was previously determined for and associated with each of the stored messages (step 207). The wireless device then checks to see if the incoming message has been designated of a sufficient priority level to alert the user of the wireless device that it has arrived (step 208). If so, the wireless device can select a customizable or user-defined alert type such as ringing, beeping, or vibrating, based on the classification information (step 209). The wireless device alerts the user using the selected method (step 210). The display of the wireless device may also be updated to reflect that a new message has arrived such as by the display of standard or user-defined icons or sounds, the display of summarized message counts by type, or the display of the actual message itself as determined by the message priority and user-defined settings (step 211).

Detailed Description Text - DETX (5):

The method of the present invention as illustrated in FIG. 2 could also be implemented in another device on the network to which the wireless infrastructure could route the incoming messages for processing before passing them on to the wireless device.

Detailed Description Text - DETX (6):

Alternatively, all of the processing could be done on the wireless device itself as illustrated by the flowchart in FIG. 3. The wireless device receives an incoming message from the wireless infrastructure (step 301). The wireless device then retrieves a predetermined set of rules corresponding to the user of the wireless device from its own memory or alternatively from a database somewhere else in the network (step 302). The incoming message is then analyzed using the predetermined set of rules to determine classification information (step 303). Using this classification information, the wireless device organizes the incoming message with the messages already stored on the wireless device (step 304). The wireless device also employs the predetermined rules to determine whether the incoming message is of sufficient priority to alert the user that it has arrived (step 305). If it is of sufficient priority, then the wireless device alerts the user using well known methods (step 306). In either case, the wireless device updates its display to reflect the incoming message (step 307).

Detailed Description Text - DETX (7):

The rule sets of the present invention used to determine the classification information are typically predetermined by the user of the wireless device. The user can input and modify these rules using any of a variety of well known systems including calling into an interactive voice response system or a system that responds to touch tone key presses, using software carried on the wireless device itself, or using a computer interface via the Internet or World Wide Web. These rules could be very simple in nature, with the user's choices limited to a few very general rules based on a few criteria, for example,

message type or message origin. Alternatively, the user could be given the option of creating sophisticated rules that would allow the incoming messages to be searched for key words or phrases, or that would use different rules depending on time of day, day of the week, source of message, etc. The present invention could also be implemented with nested categories. For example, all email messages could be grouped under an "email" category and within that category the email messages could be grouped again as "work" or "personal" email.

Detailed Description Text - DETX (8):

For example, one potential rule would analyze an incoming email message and extract the email address of the originator. This address could then be cross-referenced with a built-in address book on the wireless device to locate the category that the individual corresponding to the email address has been classified under in the address book. The email message could then be classified under the same category.

Detailed Description Text - DETX (10):

The display of the wireless device can be updated to inform the user of the results of the classification, organization, and prioritization steps in a variety of ways. The display of the wireless device could show the number of messages under each of the categories defined by the rule sets. Alternatively, the display could organize the messages by priority level, time received, or any other externally defined or user-defined item of classification information.

Detailed Description Text - DETX (11):

The method of the present invention can be implemented using any well known programming language and techniques. The implementation on the wireless device may be particularly suited to using Wireless Application Protocol (WAP) Forum defined standards, such as Wireless Markup Language (WML). The use of rule sets to organize messages is well known in the field of email software. Products like Microsoft Outlook 97 employ rules to direct incoming email messages to particular folders within the user's email box. Those of skill in the art will recognize how to implement the rule sets of the present invention to function in a similar fashion but without being limited to any one type of message.

Claims Text - CLTX (1):

1. A method of organizing message information for a user of a wireless communication device, the method comprising the steps of: receiving a plurality of messages of a first format intended for a user of a wireless communication device; receiving a plurality of messages of a second format intended for said user of the wireless communication device; determining classification information for each of the messages; **forwarding** said classification information to the wireless communication device; updating a first message counter or a second message counter corresponding to the first format or the second format, respectively, based on the **forwarded** classification information; and displaying at the wireless communication device the updated first message

counter or the updated second message counter in association with a first format classification indicator or a second format classification indicator, respectively.

Claims Text - CLTX (4):

4. The method of claim 1 comprising the additional step of: receiving a plurality of messages of a third format intended for said user of a wireless communication device.

Claims Text - CLTX (6):

6. The method of claim 5 wherein said rules are provided by said user of said wireless communication device.

Claims Text - CLTX (12):

12. The method of claim 1, wherein said first format is based on a Wireless Markup Language.

Claims Text - CLTX (13):

13. A method of organizing message information for a user of a wireless communication device, the method comprising the steps of: receiving a message intended for the user of a wireless communication device; determining classification information for said message; sending the classification information to said wireless communication device; updating a message counter associated with the classification information sent to the wireless communication device; and displaying the classification information and the updated message counter on the wireless communication device.

Claims Text - CLTX (14):

14. The method of claim 13, wherein the received message is sent to said wireless communication device.

Claims Text - CLTX (16):

16. The method of step 15 wherein said rules are provided by said user of said wireless communication device.

US-PAT-NO: 6771949

DOCUMENT-IDENTIFIER: US 6771949 B1

TITLE: Method and system for providing short message services
outside of the wireless network

----- KWIC -----

Abstract Text - ABTX (1):

A method is disclosed for providing voice messaging notification to a voice mail subscriber over the Internet, wherein the subscriber has a telephone which is serviced by a switch. The method includes receiving a voice message from a calling party for the telephone associated with the subscriber and forwarding the voice message to a mailbox for storage therein. The method also includes generating the message notification upon receipt of the voice message and transmitting the message notification to a messaging notification node. The method further includes routing the message notification to the subscriber over a local Internet gateway to provide indication to the subscriber of the stored voice message. In a preferred embodiment, the method also routes the messaging notification to a server corresponding to or designated by the subscriber, or corresponding to a paging service provider or e-mail service provider, in which the method includes generating a paging signal to a pager of the subscriber, or e-mail message including the message notification.

Application Filing Date - AD (1):

19981009

TITLE - TI (1):

Method and system for providing short message services outside of the wireless network

Brief Summary Text - BSTX (2):

This invention relates to a method and system for providing voice mail notification services outside of the wireless network.

Brief Summary Text - BSTX (4):

Voice mail systems, which are also known as voice messaging systems, have become an integral mode of communication in society, amongst businesses and individuals alike. If a call from a caller to a subscriber of a voice mail system is not answered or otherwise completed, the call is forwarded to the voice mail system wherein the caller may leave a voice message in the subscriber's voice "mailbox".

Brief Summary Text - BSTX (5):

In the wireless network, subscribers are notified of new voice mail in their wireless voice mail box through message notifications issued through the short message service (SMS). The SMS utilizes predefined message notifications that are used to supply voice mail notification to the subscriber's wireless handset. In the wireline network, the voice mail unit sends a message to the switch serving the subscriber via a Simplified Message Desk Interface (SMDI). Accordingly, when a caller calls a telephone number associated with a subscriber's telephone and is unable to be connected to the subscriber, the caller may leave a voice message for the subscriber in the subscriber's voice mailbox. At this time, the corresponding wireline or wireless service provider servicing the telephone provides an indication to the subscriber at the telephone that she has a voice message in her mailbox. This manner of notifying a subscriber that she has messages waiting in her voice mailbox may often prove to be time consuming and inefficient, especially when the subscriber is not near a phone or is otherwise unable to receive the voice mail messaging notification.

Brief Summary Text - BSTX (7):

Consequently, there exists a need for allowing a voice mail subscriber to be notified in a timely and efficient manner that a voice message has been left in her voice mailbox. The voice mail subscriber should also be able to be notified of the existence of voice mail messages in her mailbox when she is not near a telephone or is otherwise unable to receive the appropriate messaging. Such will allow the subscriber to retrieve voice mail messages associated with her telephone/handset in a timely and efficient manner.

Brief Summary Text - BSTX (11):

It is a further object according to the present invention to provide a method and system for allowing a subscriber to be notified of and to retrieve voice mail messages left in her voice mailbox.

Brief Summary Text - BSTX (12):

It is still another object according to the present invention to provide a means for through which a subscriber may be notified of messages in her voice mailbox which is easily accessible and/or mobile.

Brief Summary Text - BSTX (13):

It is yet another object according to the present invention to extend wireless voice mail notification services to voice mail subscribers outside of the wireless network.

Brief Summary Text - BSTX (14):

And it is still another object according to the present invention to provide voice mail notification services over the Internet.

Brief Summary Text - BSTX (15):

In carrying out the above objects, features and advantages of the present invention, provided is a method for providing voice message **notification** to a voice mail subscriber over the Internet. The subscriber has a telephone serviced by a corresponding switch. The method includes receiving a voice message from a calling party for the subscriber, and further includes **forwarding** the voice message to a mailbox for storage therein. Also included is generating the message **notification** upon receipt of the voice message. The message **notification** is of the SMS type, which is currently is operable only within the **wireless** network. The method also includes transmitting the message **notification** to a messaging service node, and routing the message **notification** to the subscriber over a local Internet gateway to provide indication to the subscriber of the stored voice message.

Brief Summary Text - BSTX (16):

In a preferred embodiment, the message **notification** is via Short Message Service (SMS). It also includes routing the SMS messaging **notification** to a server designated by the subscriber or designated by a service provider. In yet another preferred embodiment, the method of this invention includes routing the message **notification** to a server of a paging service designated by the subscriber or by a service provider. In such an embodiment, a paging signal including carrying the message **notification** is generated and routed to a pager of the subscriber. Further, the method may also include transmitting the message **notification to the wireless** switch if the subscriber is also a **wireless** subscriber and to the wireline switch if she is a wireline subscriber.

Brief Summary Text - BSTX (17):

Moreover, in another embodiment according to the present invention, the method includes routing the message **notification to a mail server** of an e-mail service corresponding to or designated by the subscriber. Such embodiment may include generating an e-mail message carrying the message **notification** and routing it to a predetermined e-mail address corresponding to or designated by the subscriber.

Brief Summary Text - BSTX (18):

Another embodiment of a method according to the present invention is for use in a communication network having at least one switch which serves a subscriber having a telephone. This method of routing a voicemail message **notification** over the Internet to the subscriber includes providing an Internet gateway which is in communication with the communication network. Also included is to provide a voice response unit for receiving voice mail messages and an adjunct processor which is in communication with the Internet gateway. The method further includes providing a database in communication with the adjunct processor, where the database includes a server identifier or address designated by or corresponding to the subscriber. Another method step includes detecting at the adjunct processor an SMS message **notification** generated and transmitted by the voice response unit, indicating that the subscriber's voice mailbox has a message therein. Further included is determining at the adjunct processor a destination server address for the subscriber. Such server address may be predetermined or may be one of the multiple which are available in response to various conditions. The message **notification** is then routed to a

local Internet gateway. Further included is transmitting from the adjunct processor to the local Internet gateway the determined destination server for the subscriber. Lastly the message **notification** is routed to the determined destination server. The server performs a query or look-up to a database to determine a corresponding subscriber e-mail address and routes the message **notification** to the determined e-mail address. In another embodiment, the determined destination server is an **e-mail service server** wherein an e-mail message is generated which includes the message **notification** to a corresponding e-mail address associated with or designated by the subscriber.

Brief Summary Text - BSTX (19):

As discussed, preferred embodiments of this method may include translating the message **notification** into a protocol used by the Internet gateway in order to be accepted and/or delivered thereby. In another embodiment, the designated destination server is a paging service server. Thus, a paging signal is generated which includes the message **notification** and routed to a corresponding pager associated with the subscriber.

Brief Summary Text - BSTX (20):

Yet, another method according to the present invention is disclosed for use in a communications network which has an adjunct messaging processor serving a messaging device, which may be an alphanumeric pager, a computer terminal, etc. The method includes routing a voice mail message **notification** over the Internet as part of a messaging signal. Such routing includes routing the message **notification** from a voice response unit to the messaging processor over the Internet. This routing also includes providing a database in communication with the messaging processor, wherein the database has a profile for each voice mail subscriber, so that the profile includes a destination server. It also includes generating a messaging signal for receipt by the messaging device, and the messaging signal includes the SMS voice mail message **notification**. As with the other embodiments, the destination may be a paging service server which is alerted to generate a paging signal to a pager of the subscriber. It may also be an **e-mail service server or mail server** for generating an e-mail signal to a pager of the subscriber.

Brief Summary Text - BSTX (21):

In accordance with the teachings of the present invention, also provided herein is a system for providing voice messaging **notification** to a subscriber. The system has a switch which supplies telecommunication services to the subscriber. Also included is a voice response unit which is coupled to the switch and is operative to receive an uncompleted call from a calling party to the telephone associated with the subscriber, **forward** the call to a voice response unit and receive a voice mail message in a subscriber mailbox for storage therein, and transmit a message **notification** upon receipt of the voice message at the mailbox to provide an indication over the Internet to the subscriber of the stored voice message. This message is received by the subscriber at a message receiving device. In a preferred embodiment, the voice response unit, in transmitting the message **notification**, operates to transmit an SMS message **notification** to a service or processing node.

Brief Summary Text - BSTX (22):

Another system embodiment according to the present invention is for use in a communication network for routing a wireless voice mail message notification to a subscriber. The system includes an Internet gateway in communication with the communication network. Also included is a database which has a list of subscriber e-mail addresses corresponding to each subscriber's voice mailbox. An adjunct processor is provided in communication with the voice response unit and the Internet gateway. The adjunct processor is operative to determine a destination server/e-mail address for the subscriber, instruct the SMS node to route the voicemail message notification to a local Internet gateway, and transmit to the Internet gateway the determined e-mail address for the subscriber.

Detailed Description Text - DETX (2):

With reference to FIG. 1 of the drawings, there is shown a schematic diagram illustrating the wireless voice messaging system according to the present invention, denoted generally by reference numeral 10. The voice messaging system includes at least one wireless switch 12 (or Mobile Switching Center (MSC)) which is connected via Signaling Service System 7 (SS7) links 14 to a service node 16. Wireless switch 12 provides wireless services to wireless subscribers, such as to a user of a wireless handset 22 (for purposes of the invention described herein, handset 22 and telephone 50 will both be referred to as a "telephone".)

Detailed Description Text - DETX (4):

Voice response unit 18 includes at least one voice mailbox 19 which corresponds to or is associated with a subscriber of voice mail system 10. Depending on whether the subscriber is also a wireless or wireline subscriber, incoming voice mail messages for each subscriber are stored in the subscriber's voice mailbox 19, representing a wireless subscriber voice mailbox, or voice mailbox 47, representing a wireline voice mailbox. Each voice mailbox 19,47 is typically associated with a subscriber's respective telephone number, but it is contemplated that mailboxes 19,47 may also be identified with a subscriber in a variety of other ways known in the art. Voice response unit 18 also includes control logic 20 for determining into which mailbox to place the voice message. In the wireless network, control logic 20 communicates with service node 16 for generating messages for receipt by wireless switch 12 instructing switch 12 to provide the voicemail message notification services to the subscriber. Control logic 20 also generates the Short Message Service (SMS) messages to a subscriber, as is discussed further herein. The messages are transmitted via a command language suitable to this application and the relevant node, such as the Octel Command Language (OCL).TM.. In a wireline network, control logic 20 notifies telephone 50 of the message notification, such as a stutter dial-tone or other similar indicator, via a wireline switch 49 (such as Service Switching Point (SSP)). Other similar indicators may include a voice message light attached to telephone 50.

Detailed Description Text - DETX (5):

Typically, when a voice mail message is left for a subscriber of telephone

22,50, system 10 operates to provide an indication to the subscriber at various locations, including telephones 22,50 of a voice mail message in voice mailbox 19,47 of voice response unit 18. In order to transmit the SMS message notification to wireless handset 22, a hardwire data link 24 is provided between voice response unit 18 and SMS service node 16. This data link 24 is often a physical data link, and more particularly may be an X.25 data link, and still more particularly may be of the SMS data link type, as these types of links are known in the art. Another link 14 is provided between SMS service node 16 and wireless switch 12, which is an SS7 link. Thus, voice response unit 18, upon receipt and storage of a voice mail message in a subscriber's mailbox 19, generates an SMS message notification signal across data link 24 to service node 16. The signal indicates the presence and number of voice mail messages in a voice mailbox corresponding to a particular subscriber/wireless phone number. Wireless switch 12 then interprets the message and similarly activates an indication at wireless handset 22 to notify the subscriber that she has a message. Such notification is typically achieved by an SMS text message notification which may appear on a display of handset 22 to indicate to the subscriber/user that one or more messages are present in her voice mailbox 19. Such SMS text message may also be accompanied by beep tone, flashing light or other message indicator with the handset 22.

Detailed Description Text - DETX (6):

The wireline network may also include a Simplified Message Desk Interface (SMDI) 48, which is well known in the art of telecommunications. SMDI link 48 is a two-way data link which transmits the subscriber's telephone number to voice response unit 18 when a calling party is transferred there in order to leave a message for the subscriber, allowing control logic 20 to translate the telephone number into the subscriber's mailbox number. As mentioned, SMDI link also serves to provide an indication to the subscriber that he/she has a voice message in their mailbox. Thus, in the wireline network, upon receiving and storing a voice message in a subscriber's mailbox 47, voice response unit 18 signals wireline switch 49, which generates a message notification to switch 49, instructing switch to turn on the voice mail notification at telephone 50. As discussed further herein, the voice mail notification is commonly in the form of a stutter dial-tone.

Detailed Description Text - DETX (7):

On the other hand, in the wireless network, upon receiving and storing a voice message in a subscriber's mailbox 19, voice response unit 18 signals service node 16 via link 24, which in turn instructs switch 12 (which is servicing handset 22) via link 14 to turn on voice mail notification at handset 22, or provide another similar indicator to the subscriber. In other words, wireless switch 12 interprets the message and similarly activates an indication at wireless handset 22 to notify the subscriber that she has a message.

Detailed Description Text - DETX (8):

In accordance with the teachings of the present invention disclosed herein, SMS message notification is provided to the subscriber outside of the wireline and wireless networks. Particularly, the SMS message notification is routed through the Internet to a voice mail subscriber at one or multiple locations or

message receiving devices. A first type contemplated is computer messaging **notification** such as including delivery via electronic mail (e-mail) and the Internet or World Wide Web. A second type contemplated is messaging **notification** via a **mobile or wireless** pager. Each of these types of messaging **notification** delivery is accomplished via an Internet gateway.

Detailed Description Text - DETX (9):

In further keeping with the teachings of the present invention, an adjunct processor 27 is provided in system 10 in communication with service node 16. Adjunct processor 27 is also provided in communication with a routing and mapping database 28 (or other suitable look-up source). As shown in association with FIG. 2, database 28 is operative to store a list of predetermined servers (such as **mail server** 31 or paging service server 33 or other) or e-mail addresses associated with or corresponding to the subscriber (and more particularly corresponding to the subscriber's voice mailbox identifier or telephone number). With reference to FIG. 2, note that database 28 has stored therein for each subscriber telephone number a server or e-mail address that has been designated by the subscriber or by the service provider as the respective subscriber SMS message delivery destinations outside of the **wireless** and wireline networks. In other words, the delivery destination is preferably predetermined and existing in database 28. For example as shown in FIG. 2, the subscriber having **wireless mobile** telephone number (303) 555-1234 has designated a server for an **e-mail provider and a server** for a paging service provider; the subscriber having number (303) 555-2345 has designated an e-mail address only. Of course, e-mail address (such as "name@USWEST.com") includes the server address USWEST.com.

Detailed Description Text - DETX (11):

As will be explained in further detail herein, local Internet gateway is thus operative to transmit and convert SMS message **notifications** from a form compatible with the protocol used by the **wireless** network to a form compatible with the protocol used by the Internet. At present, the Internet, which is designated generally by reference numeral 34, is operative on what is known as the Transmission Control Protocol/Internet Protocol (TCP/IP) 32. Again, this protocol and the generalized operation of an Internet gateway are well known to those skilled in the art and need not be discussed in further detail herein.

Detailed Description Text - DETX (12):

As specified above, service node 16 receives the SMS message **notification** signal. Service node 16 transmits the signal to adjunct processor 27, which via reference to database 28 (see FIGS. 1 and 2), queries the database 28 and identifies the subscriber's corresponding destination server or e-mail address and directs service node 16 to route the SMS message **notification** to one or more of the specified delivery destinations via local Internet gateway 30, where it is stored electronically. As mentioned, multiple delivery destinations may be predefined by the subscriber. For example, a subscriber may desire to receive the message **notification** at her e-mail address, her pager, or both. However, it is contemplated that different delivery locations may be specified for delivery under various conditions. For example, the subscriber may desire to have the message **notification** delivered to her pager

during the evening and on weekends, while choosing to receive such message notifications by e-mail during normal business hours.

Detailed Description Text - DETX (13):

Thereafter, adjunct processor 27 transmits the delivery destination server or e-mail address of the subscriber to local Internet gateway 30 for delivery of the SMS message notification. As previously noted, Internet gateway 30 is operable to translate the SMS message notifications and the delivery destination, if necessary, to Internet protocol. Gateway 30 then transmits the message notification to the subscriber at the designated server/e-mail address. Such message notification is then accessible to the subscriber at a computer terminal 38 or any other messaging devices operable to access servers or e-mail addresses, or to otherwise receive such messages. Thus the subscriber may check her e-mail messages on her computer terminal 38, and receive the translated wireless voice mail message notification. Of course, such information may be password protected by the subscriber, as well. Messaging service 10 thus allows callers to leave a message in a subscriber's voice mailbox, and proceeds to generate notification signals to the subscriber at one or many various locations, such as an alphanumeric paging device, computer terminal, server, or other suitable output device.

Detailed Description Text - DETX (14):

Referring still to FIG. 1 of the drawings, the basic message notification process according to the present invention is further described with reference to an SMS message notification delivered via a paging device, such as an alphanumeric pager 42. As shown, the method and system are for use in a communications network 10 having a paging processor 40 which serves at least one paging device 42 associated with a paged party/subscriber 44. As with previous embodiments, the SMS message notification is received by Internet gateway 30, along with a delivery destination. In this embodiment, however, the destination is contemplated to be a server 33 servicing a paging service provider. The paging service provider receives the message notification and the subscriber identifying information, then transmits a signal to a paging processor 40, so that the subscriber may receive the message notification via pager 42.

Detailed Description Text - DETX (15):

Following receipt of the page request signal by paging processor 40, the SMS message notification is translated to paging protocol by paging processor 40. At least one database 46 is provided in communication with paging processor 40, which is operative to query database 46 for the necessary subscriber pager delivery information. The at least one database 46 includes a list of subscriber information or a subscriber look-up table having corresponding subscriber information. The database is consulted and the subscriber identifying information (such as wireless or wireline telephone number) is matched with any or all of the subscriber's designated paging device identifying codes. The database returns the query result which includes the pager identifying information to which the particular message notification should be delivered, as originally designated by the subscriber. Moreover, the SMS message notification signal is translated by paging processor 40 into a

paging protocol from the Internet protocol from which the message is received. Finally, a paging signal 41 is generated for receipt by the paging device 42. The paging signal 41 has a data field which communicates the (translated) SMS message notification to the subscriber at her pager 42. Paging processor 40 then transmits the signal to the designated paging device 42, which upon receipt reflects notification and alerts the subscriber/user of pager 42 of the wireless voice mail message notification, such as on the LCD or other portion of the device, which may for example, display in text format that the subscriber has one or more voice mail messages in her voice mailbox, which may also include an indication as to which have been designated by the calling party as Urgent. As with the other delivery destinations, this message notification signal at pager 42 alerts subscriber 44 that at least one voice mail message awaits in the voice mailbox. Again, this message may be accompanied by a auditory or visual notification, such as a beeping tone, or a flashing light.

Detailed Description Text - DETX (16):

It is to be understood, however, that the invention described herein is applicable to all messaging systems capable of being delivered via the Internet, including but not limited to, e-mail, voice-mail, and Web-based systems. Regardless of the application, the invention includes delivering SMS message notifications to a peripheral via the Internet.

Detailed Description Text - DETX (17):

Further, with reference to FIG. 3 of the drawings, there is shown a block diagram of the generalized method steps of the present invention as applied to the SMS notification messaging system. As indicated above, the method is directed for use with a wireless and/or wireline communication network which is in communication with the Internet. The methods disclosed herein are operative to identify and transmit SMS voice message notification as part of a paging signal and/or e-mail message.

Detailed Description Text - DETX (18):

A method is set forth for providing voice messaging notification to a voice mail subscriber over the Internet. The wireless subscriber has a wireless handset telephone 22 which is serviced by a wireless switch (MSC) 12. The wireline voice mail subscriber has a wireline telephone 50 which is serviced by a wireline switch 49. An incoming call is placed to a telephone number corresponding to the subscriber's telephone. In the situation that there is either no answer by the subscriber at the telephone 22,50, a busy signal is received by the caller, the telephone 22,50 handset is in inactive mode, or the call is otherwise incomplete, the incoming call is forwarded by the respective switch 12,49 and received by the voice response unit 18 (shown at block 60). Voice response unit 18 receives 62 the call from wireless switch 12 via data links 14 and 24.

Detailed Description Text - DETX (19):

The control logic 20 of voice response unit 18 then determines the mailbox number for the called party, as shown at block 62. This is typically

accomplished by comparing and matching the called number with a list of mailbox numbers to determine the mailbox number associated with the called party. Control logic 20 generates SMS message **notification** upon receipt of the voice message (shown in block 66), which is transmitted to a service node over data link 24 (shown as block 68). Service node 16 transmits to adjunct processor 27 the message **notification** and subscriber identifying information, which then queries a database (28) for delivery information corresponding to the subscriber (shown as block 70). The method includes routing the message **notification** to the subscriber over a local Internet gateway to provide indication to the subscriber of the stored voice message (shown as block 72).

Detailed Description Text - DETX (20):

In a preferred embodiment, the method further includes routing the messaging **notification** to a server designated by or corresponding to the subscriber (as shown in block 74). As previously discussed, this server serves a paging service provider or e-mail service provider which is available for conveying messages or signals to the subscriber. As set forth below, the server may also be associated with a **mobile**/cellular paging service for signaling an alphanumeric pager of the subscriber with the SMS message **notification**.

Detailed Description Text - DETX (21):

In another embodiment, a method according to the present invention is provided for routing voicemail SMS message **notifications** over the Internet to the subscriber. The method is provided for use in a communication network having at least one voice response unit serving at least one subscriber. Further provided is detecting at the adjunct processor a message **notification** from the subscriber's voice mailbox (shown as block 68). Also included is providing an adjunct processor in communication with a service node and the at least one Internet gateway (shown as block 70). At least one database is provided in communication with the adjunct processor, where the at least one database includes at least one designated destination server or e-mail address which corresponds to or is designated by the subscriber (shown as block 70). Also included is determining at the adjunct processor a designated destination server/e-mail address for the subscriber (shown as block 70). The method includes providing at least one Internet gateway in communication with the communication network (shown as block 72).

Detailed Description Text - DETX (22):

The message **notification** and determined destination server or e-mail address is routed to a local Internet gateway (shown as block 72). The method includes translating the message **notification** into a protocol used by the Internet gateway, which said protocol is preferably Transmission Controlled Protocol/Internet Protocol (shown as block 72). Moreover, included is routing the message **notification** to the determined destination server/e-mail address (shown as 74). The message **notification** is then available to be received by the subscriber, preferably at a computer terminal having the requisite Internet access or access to an **e-mail provider's server** to retrieve his/her e-mail. Another embodiment is for a method wherein the determined destination server is an **e-mail provider's server**. The method further includes transmitting the (translated) SMS message **notification** to the server which performs a query or

lookup for the subscriber's designated email address. An e-mail message which includes the message **notification** is then generated to the predefined e-mail address for the subscriber.

Detailed Description Text - DETX (23):

In another embodiment, the designated server may be a paging service provider server. Thus in addition to the above steps, the method further includes generating a paging signal including the message **notification** to a paging processor which corresponds to or is associated with the subscriber (shown as block 76). The paging processor itself serves as a gateway which translates the voice mail message **notification** and subscriber pager identifying information to paging protocol for delivery to the subscriber's designated pager.

Detailed Description Text - DETX (24):

In keeping with the teachings of this embodiment, disclosed is a method for providing voice messaging **notification** for a subscriber who has a voice mailbox. In a preferred embodiment, the destination server is a paging service provider server. The server signals a paging processor (such as processor 40 shown in FIG. 1). The method includes translating the SMS messaging **notification** to paging protocol (shown as block 78). A lookup or query by the paging processor is performed 80 to a database to determine subscriber identifying paging information to identify the subscriber's pager (shown as pager 42 in FIG. 1). The paging signal is generated and the translated SMS message **notification** is delivered to the subscriber's designated pager (shown as block 82).

Claims Text - CLTX (1):

1. A method for providing voice messaging **notification** to a voice mail subscriber over the Internet, the voice mail subscriber having a telephone serviced by one of a **wireless** and wireline switch, the method comprising: receiving a voice message from a calling party for the telephone associated with the voice mail subscriber; **forwarding** the voice message to a mailbox for storage therein; generating a Short Message Services message **notification** upon receipt of the voice message; transmitting the message **notification** to a messaging service node; and routing the message **notification** to the voice mail subscriber over a local Internet gateway to provide indication to the voice mail subscriber of the stored voice message.

Claims Text - CLTX (2):

2. The method of claim 1 further comprising routing the message **notification** to a server designated by the subscriber.

Claims Text - CLTX (3):

3. The method of claim 2 wherein routing the message **notification** to a server is routing to a server of a paging service provider.

Claims Text - CLTX (4):

4. The method of claim 3 further comprising generating a paging signal carrying the message notification to a pager of the subscriber.

Claims Text - CLTX (5):

5. The method of claim 2 wherein routing the message notification to a server is routing to a mail server for an e-mail service provider.

Claims Text - CLTX (6):

6. The method of claim 5 further comprising generating an email message carrying the message notification to an e-mail address corresponding to the subscriber.

Claims Text - CLTX (7):

7. For use in a communication network having at least one switch serving at least one subscriber having a telephone, a method of routing a voicemail message notification over the Internet to the subscriber, the method comprising: providing at least one Internet gateway in communication with the communication network; providing an adjunct processor in communication with a messaging service node and the at least one Internet gateway; providing at least one database in communication with the adjunct processor, the at least one database including at least one designated destination server corresponding to the subscriber; detecting at the service node a Short Message Services message notification from the subscribers's voice mailbox; transmitting the message notification to adjunct processor; determining at the adjunct processor the at least one designated destination server for the subscriber; routing the message notification to the at least one local Internet gateway; transmitting from the adjunct processor to the local Internet gateway the at least one designated destination server for the subscriber; and routing the message notification to the at least one designated destination server.

Claims Text - CLTX (8):

8. The method as in claim 7 further comprising translating the message notification into a protocol used by the Internet gateway.

Claims Text - CLTX (11):

11. The method as in claim 10 further comprising generating a paging signal including the message notification to a corresponding pager for the subscriber.

Claims Text - CLTX (13):

13. The method as in claim 10 further comprising generating an e-mail message which includes the message notification to a corresponding e-mail address for the subscriber.

Claims Text - CLTX (14):

14. A method for providing voice messaging notification for a subscriber

having a telephone serviced by at least one of the public wireless and wireline networks, the method comprising: receiving a voice mail message from a calling party calling the telephone associated with the subscriber; forwarding the voice mail message to a subscriber mailbox for storage therein; generating a Short Message Services (SMS) message notification to an Internet gateway in communication with the at least one of the public wireless and wireline networks; and routing the SMS message notification to the Internet gateway to provide an indication to the subscriber of the stored voice mail message.

Claims Text - CLTX (15):

15. For use in a communications network having a messaging processor serving at least one messaging device, a method of routing a messaging signal over the Internet, comprising: routing a Short Message Services (SMS) message notification from a service node to the messaging processor over the Internet; translating the message notification in the messaging processor: providing at least one database in communication with the messaging processor, the at least one database having a profile for each voice mail subscriber, the profile including a predetermined destination server; and generating a messaging signal for receipt by the at least one messaging device to the predetermined destination server, the messaging signal including the message notification.

Claims Text - CLTX (20):

20. A system for providing voice messaging notification for a subscriber having a telephone in one of the wireless and wireline networks, the system comprising: a switch providing telecommunications services to the telephone; a voice response unit coupled to the switch operative to receive a voice message from a calling party for the subscriber's telephone, forward the voice message to a mailbox for storage therein, and transmit a Short Message Services (SMS) message notification upon receipt of the voice message at the mailbox to provide an indication to the subscriber over the Internet of the stored voice message; an Internet gateway for providing the message notification to the subscriber; and a message receiving device for allowing the subscriber to receive the message notification.

Claims Text - CLTX (21):

21. The system of claim 20 wherein the voice response unit, in transmitting the message notification, is further operative to transmit a message notification to a messaging service node.

Claims Text - CLTX (25):

25. For use in a communication network having at least one switch serving at least one telephone subscriber in the public wireless and wireline networks having a voice mail notification system, comprising: at least one Internet gateway in communication with the communication network; at least one database including a designated delivery destination corresponding to the at least one subscriber's voice mailbox; and an adjunct processor in communication with the at least one Internet gateway and a messaging service center, wherein the adjunct processor is operative to query the at least one database to determine the designated destination server for the subscriber, instruct the messaging

service center to route a Short Message Services (SMS) voice mail message **notification** to the at least one Internet gateway, and transmit to the at least one Internet gateway the determined server for delivery to the subscriber.